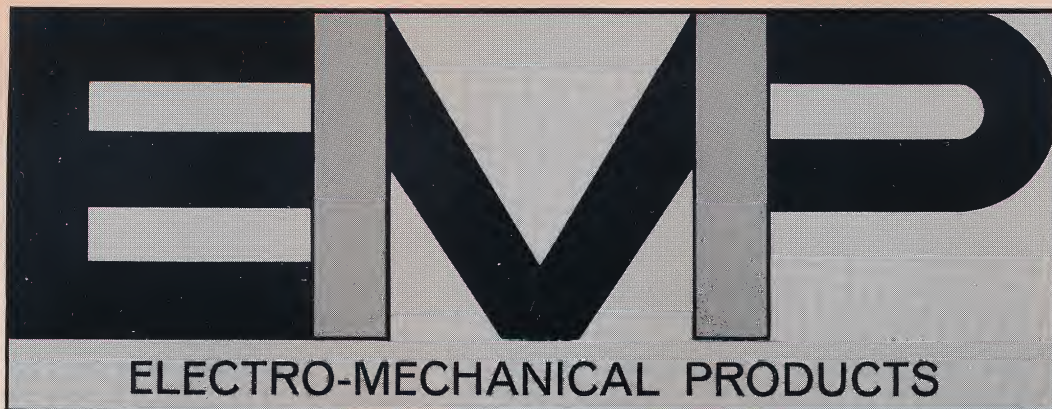




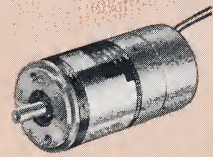
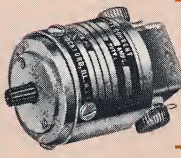
ultra-sensitive relays
precision d-c motors
commercial d-c motors
a-c shaded-pole motors

electromechanical actuators
air valves
temperature control systems
electromagnetic shielding
positioning systems

molded products

BARBER-COLMAN COMPANY Rockford, Illinois

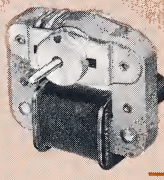
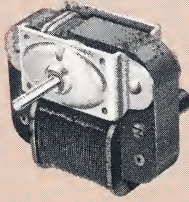
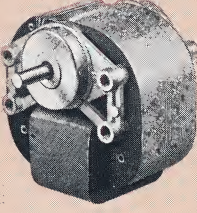
PRECISION D-C and A-C MOTORS

	TYPE	SPECIFICATIONS	REMARKS
	FYLM HYLM KYLM	Permanent magnet type 7/8", 1" and 1-1/4" diameters Rated horsepower to .055, intermittent duty Speeds from 5000-20,000 RPM Power input 2 to 70 watts	Smooth envelope, constant pressure brushes, explosion proof. Military spec. design.
	BYLM	Permanent magnet type 1/2" diameter Rated horsepower to .1, intermittent duty Speeds from 5000-20,000 RPM Power input 7 to 155 watts	Designed to meet military specifications. Rugged construction.
	DYLM	Split-series type 1-3/8" diameter Rated horsepower to .025, intermittent duty Speeds from 8000-28000 RPM	Reversing controlled by SPDT switch.
	AYLO	400 cycle, single phase type 1-1/2" diameter Rated horsepower to .040, intermittent duty Speeds up to 10,500 RPM	Squirrel cage rotor, split phase capacitor operation. Available with 400 cycle brake.

Barber-Colman precision motors are available with many optional extras, including magnetic brakes, radio noise filters, gearheads, governors, blowers. Permanent magnet types, used as tachometer generators, will produce up to 40 volts per 1000 RPM for servo rate feedback systems.

SHADED-POLE MOTORS

UNIDIRECTIONAL

	TYPE	SPECIFICATIONS	REMARKS
	AYAA DYAA KYAA	Rated horsepower .0007 to .0050 Size — 2-7/32" x 2-1/4" Length — 1-1/8" to 1-3/4", plus shaft Alignable sleeve bearings	Barber-Colman's smallest shaded-pole motor design.
	DYAB KYAB OYAB AYAF DYAF KYAF OYAF CYAF	Rated horsepower .0017 to .032 Size — YAB 2-3/8" x 2-19/32" YAF 2-21/32" x 2-3/4" Length — 1-9/16" to 2-1/2", plus shaft Alignable sleeve bearings	YAB's feature high starting torque; YAF's feature higher power, running torque.
	AYAR BYAR CYAR DYAR	Rated horsepower .005 to .050 Size 3-1/8" x 3-1/4" Length 1-29/32 - 3-11/32", plus shaft	Two rotor designs available. Round bars for high power, rectangular bars for high starting torque.

REVERSIBLE

TYPE

SPECIFICATIONS

REMARKS

AYAE
DYAE
KYAE

Wound shading coils for reversing operation.
Rated horsepower — .00015 to .006
Alignable sleeve bearings
Size 3" x 2-7/8"
Length 1-5/16" - 1-15/16" plus shaft

Adaptable for split-phase operation or electronic control from servo amplifiers. Drive remote positioners, recording pens.

OYAE

Heavy duty design
Rated horsepower .0055 to .043
Ball bearings
Size 3-7/8" x 3-7/8"
Length 3-1/8" plus shaft

Split-phase or electronic operation available. Barber-Colman's largest reversible motor.

SYNCHRONOUS

TYPE

SPECIFICATIONS

REMARKS

DYAJ
KYAJ
OYAJ

Constant speed — 3600 RPM.
Rated horsepower — .0043 to .0143
Size 2-3/8" x 2-19/32"
Length 1-9/16" to 2-1/4" plus shaft

Develop more than 30 times power of ordinary clock motors. Drive charts, timers, cameras, tape transports.

A-C GEARED MOTORS

TYPE

SPECIFICATIONS

REMARKS

HYAZ
GYAZ

Single plate type, steel gears on nitrided shafts.
Maximum torque 30 lb-in.
Ratios from 2.5/1 to 720/1
Fits type YAB, YAF, YAE and YAJ base motors.

Designed for independently supported loads with only light side thrust. Heavy duty version, TYAZ, for torque to 75 lb-in.

DYAZ

Double plate type, gear shafts supported in sintered bronze bearings. Maximum torque 75 lb-in. Ratios from 4/1 to 30000/1. Fits type YAB, YAF, YAR, YAE and YAJ base motors.

Designed for overhanging or radial thrust loads. Heavy duty gears available for higher loads up to 85 lb-in.

PYAZ

Enclosed, grease-lubricated gear train. Sintered bronze bearings support gear shafts. Maximum torque 100 lb-in. Ratios from 4/1 to 540,000/1. Fits type YAB, YAF, YAE and YAJ base motors.

Enclosed design gives gear train protection for exposed applications.

MYAZ

Enclosed, grease-lubricated gear train. Molded alloy steel gears. Maximum torque 15 lb-in. Ratios from 2/1 to 2489/1. Fits only type YAA base motors.

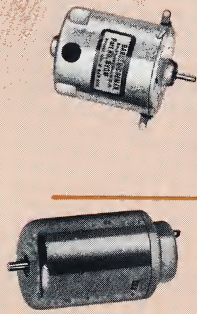
Versatile foot and flange mounting. Compact package for limited space requirements.

SYAZ

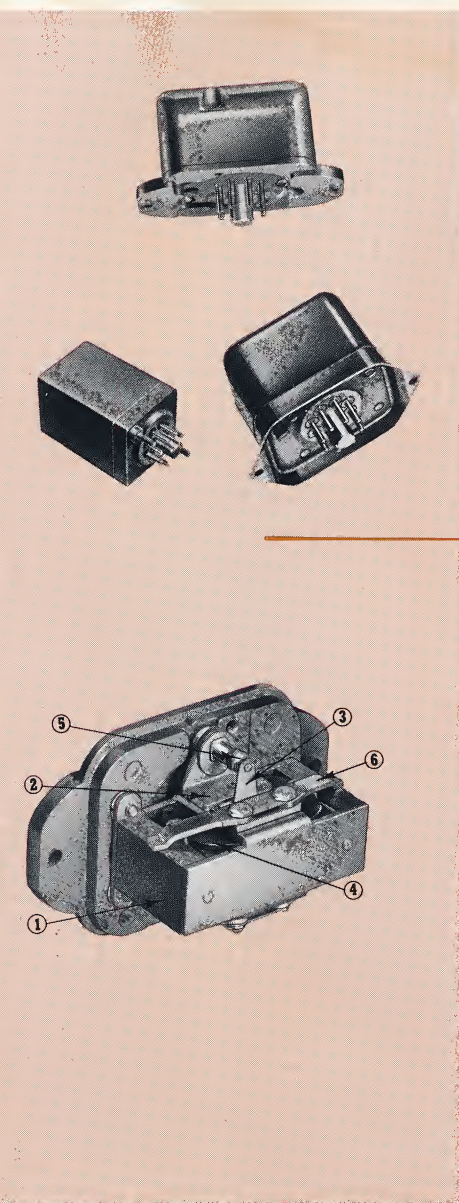
Flat, space-saving design in die cast enclosure. Molded alloy steel gears, grease lubricated. Maximum torque 50 lb-in. Ratios from 9/1 to 1136/1. Fits types YAB, YAF, YAE and YAJ base motors.

Face mounting with optional mounting hole pattern arrangements. Combines good quality with low cost.

BATTERY POWERED MOTORS

	TYPE	SPECIFICATIONS	REMARKS
	BYQM	1.29" diameter High efficiency, low current drain. Voltage range 3-30 vdc. Available governed or ungoverned. Torques up to .2 oz. in. Governed speeds from 1200 to 6000 RPM.	Integral governor is exceptionally stable, functions through wide torque and voltage range.
	DYQM	1" diameter. High output from small package. Typical motor rated .3 oz-in. at 4850 RPM	Ideally suited for battery powered appliances, housewares.

ULTRA SENSITIVE RELAYS



The Micropositioner is a d-c polarized relay capable of operating on input power as low as 40 microwatts. The most common calibration, form K, is "null seeking" in which the moving contact assumes a floating neutral position when the coil is de-energized. Form M is a memory type with magnetic latching. The last contact closed remains closed until a reverse input signal closes the moving contact to the opposite stationary contact. Form C is calibrated to be magnetically biased to close one contact when coil input is zero. A coil signal of approx. 1 milliwatt, of the correct polarity transfers the armature to the NO contact. A transistorized unit with a built-in pre-amp greatly reduces input power requirements.

Micropositioners are ideal as null detectors in resistance bridge circuits, differential relays in electronic plate circuits, or amplifiers in photoelectric circuits. They are available in several standard enclosures. Shown at the left are Type 100, a bakelite housing with an octal base, and Types 400 and 500, both hermetically sealed units. Other types with solder lugs and terminal blocks are available.

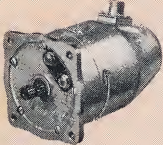
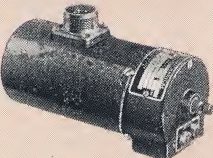
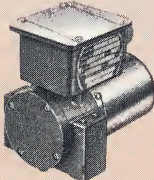
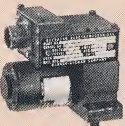
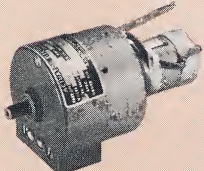
HOW THEY OPERATE

- **Rugged construction** — proved magnetic circuit is calibrated by only one adjustment other than contact gap.
- **Long life** — no armature pivots or bearings to wear out.

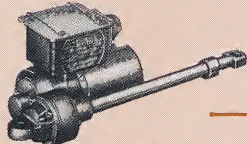
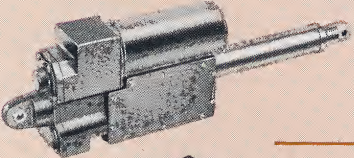
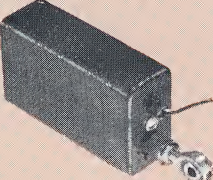
Two Alnico magnets ① and symmetrical pole pieces ② form a permanent magnet flux path across identical air gaps. Contacts are mounted on each end of an armature ③ which is centered in the air gaps and divides each into two arms of a magnetic bridge circuit. When the relay coil ④ is energized, a magnetic potential difference is established between the ends of the armature. The resulting magnetic force rotates the armature against the restoring force of its torsional support spring. Which of two contacts ⑤ will close depends on the polarity of the coil input signal. Four symmetrically located magnet shunts ⑥ provide for calibrating the relay to various operating values.

AEROSPACE ACTUATORS

ROTARY-ELECTROMECHANICAL

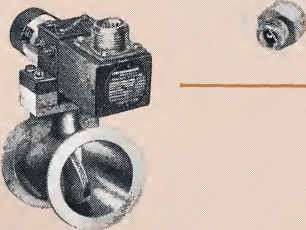
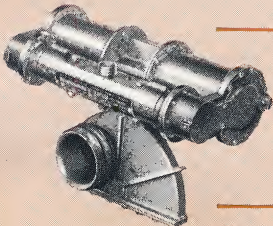
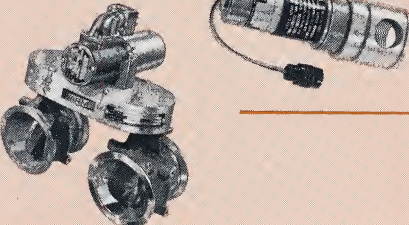
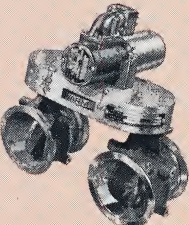
	TYPE	TORQUE RANGE	REMARKS
	AYLC	500 lb-in.	
	EYLC	100 lb-in.	
	GYLC	50 lb-in.	Rotary units have been designed for torques up to 5000 lb-in. Most units are specially designed to fit individual applications but some units are available as standard. Features include wide range of speed torque outputs; smooth, serrated, or special output shafts; d-c or a-c operation; versatile, light weight units; travel or torque limit versions available; limit stops pre-set or externally adjustable as desired; enclosed limit switches; internal rheostats on some models; wide range of strokes; unidirectional or reversible travel; planetary gearing for special applications; explosion proof container; military units designed to meet actuator specification MIL-A-8064A.
	NYLC	150 lb-in.	
	EYLC 7567-1	100 lb-in.	

LINEAR-ELECTROMECHANICAL

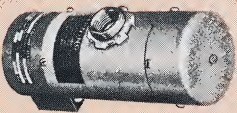
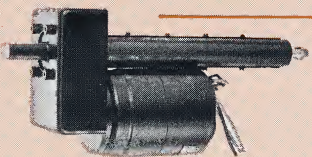
	TYPE	LOAD RANGE	REMARKS
	JYLC	200 lb.	
	RYLC	400 lb.	Units have been designed up to 1000 lb load. Most units are specially designed to meet individual applications. Features include: either cam operated or load operated switches; auxiliary switches available; d-c or a-c operation; radio noise filters available; internal rheostats on some models; fast response and minimum end play for trim applications; adaptable to many variations in mounting requirements; designed to applicable military specifications.
	SYLC	400 lb.	

AIR VALVES

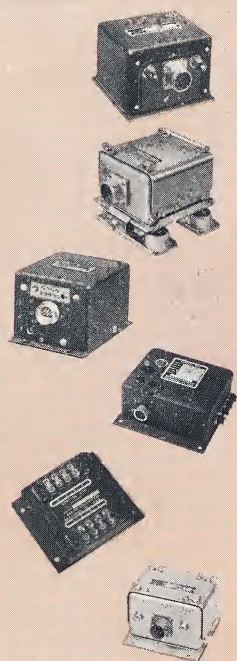
DESIGNED TO MEET YOUR REQUIREMENTS

TYPE	BORE DIA.	REMARKS
Air duct drain 	—	Simple construction; completely automatic; reduces corrosion in ducts.
Butterfly with actuator 	1" to 6"	Extremely low leakage; several flanges available; air temperatures up to 950°F; pressures up to 460 psig; 18 standard units suit most normal applications.
Sliding gate 	1-1/2"	Pneumatic actuator driven valve; fast action; high temperatures to 850°F; solenoid operated.
Electropneumatic poppet 	1/2" to 1"	Suitable for high temperature shut-off applications up to 850° F; low internal leakage; solenoid operated.
Split flapper 	1" to 4"	Inexpensive unit; simple operation; fewer parts to wear out; temperature to 700° F. with 370 max. psig.
Special valves 	—	Valves for operation in other than air have been developed. A salt water valve is shown.
Dual valve 	1" to 3"	Motor actuator driven valve; blends hot and cold air in conditioning systems; temperatures to 950° F.

INDUSTRIAL ACTUATORS

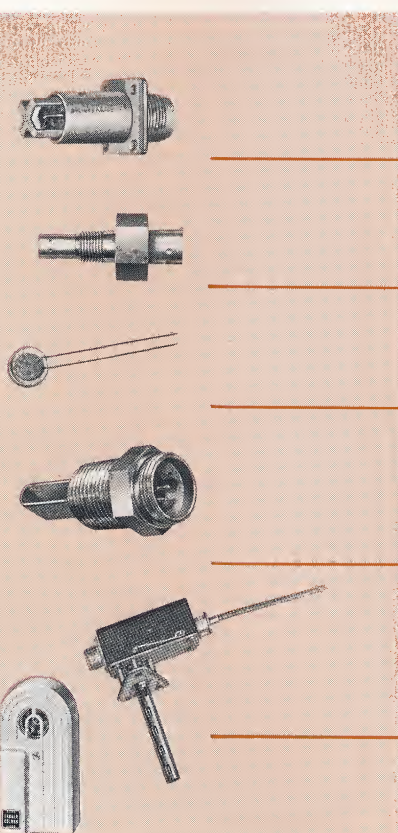
TYPE	TORQUE	REMARKS
Rotary CYLC 	100 lb-in. 500 lb-in.	Stock units; low power requirements; fast response; a-c or d-c operation; light weight; high reliability; electro-mechanical.
Linear DYLC 	LOAD 800 lb.	Stock units; fast travel of 5.75" in 13 seconds at 800 lb load; a-c or d-c operation; value engineered for lower cost; electromechanical.

TEMPERATURE CONTROL AND POSITIONING SYSTEMS



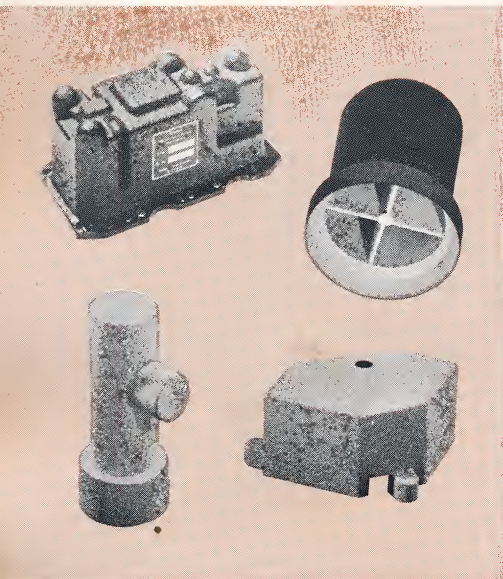
TYPE	WEIGHT	SIZE	REMARKS
Polarized relay	1.1 lb.	2.88" x 4.09" x 2.25"	The boxes illustrated are typical of the many temperature control, remote positioning, anti-icing, and navigation flashing light systems that can be designed to meet your specific needs. Military units are fully qualified to the applicable portions of specification MIL-E-5272A. Our developments include CEDAC, a cooling effect detection and control system, and modern burst length proportioning controls.
Polarized relay	2.0 lb.	5.69" x 6.06" x 3.87"	
Transistor	1.0 lb.	3.00" x 3.00" x 3.00"	
Transistor	1.75 lb.	5.50" x 4.63" x 2.50"	
Transistor	0.5 lb.	4.00" x 3.37" x 1.25"	Four standard temperature control kits are available for general aviation applications.
Polarized relay	2.3 lb.	4.82" x 5.13" x 3.88"	

TRANSDUCERS AND THERMOSTATS



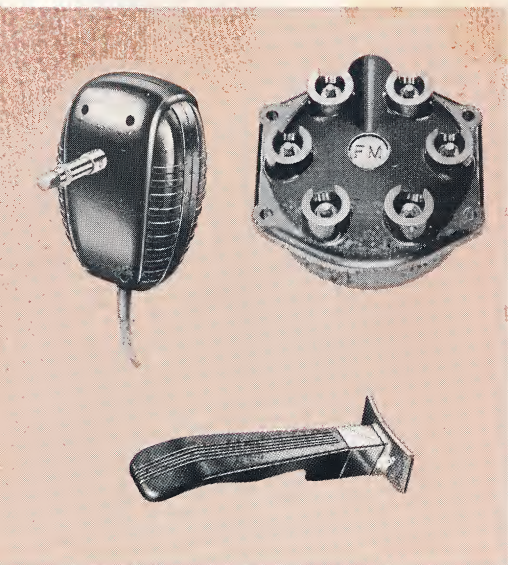
WEIGHT	SIZE	REMARKS
0.07 lb.	2.12" x .81"	Thermistor for sensing compartment temperature.
0.07 lb.	1.56" x .62"	CEDAC unit — sensitive to mass air flow in ducts.
0.01 lb.	.106" x .560"	Thermistor used in windshield temperature control systems.
0.09 lb.	.88" x 2.05"	Threaded or flange mounted; to MIL-B-5495 curve; for sensing temperature in air ducts.
0.75 lb.	2.25" x 3.88" x 2.22"	Thermostat switch rating is 5 amps, 28 v d-c; fast response; minimum maintenance. Available with cable for remote adjustment of control point.
0.75 lb.	4.12" x 3.03" x 2.25"	Special cabin sensing element provides proper air sampling for efficient system operation.

POLYFORM electromagnetic shielding



POLYFORM is a proprietary method of bonding electromagnetic shielding material utilizing standard metalizing techniques. POLYFORM provides equal or better shielding properties for less weight than other types of similar enclosures. This process has its main advantage in producing enclosures of extremely difficult configuration and for short run prototype units. POLYFORM shielding can be applied by spraying directly onto the device to be shielded, or a special enclosure can be built to cover the device requiring shielding. In either case, shielding can be provided in virtually any configuration to fit the packaging requirements of the application. Write for additional details on this modern method for obtaining electromagnetic shielding.

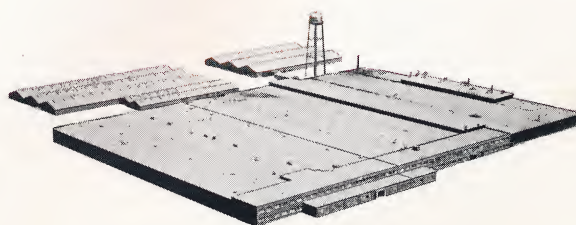
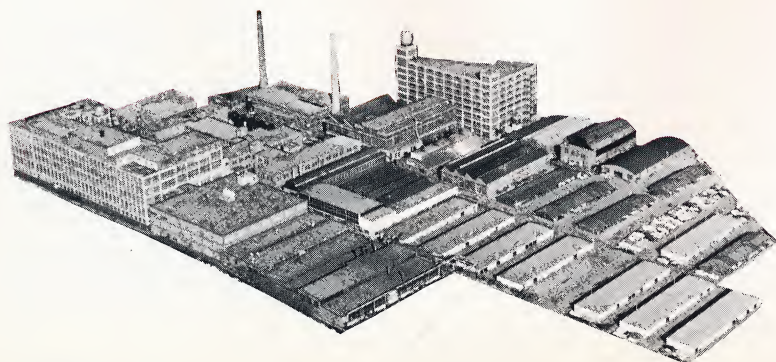
MOLDED PRODUCTS



Barber-Colman produces molded plastic parts from all thermo-setting compounds such as Bakelite, Durez, Plaskon. They are used in many other Barber-Colman products and also in a wide variety of industrial and consumer equipment built by other manufacturers. A partial list would include parts for appliances, magnetos, motors, electrical switch gear, timers, textile machinery, electric erasers. Over 34 years of experience in design and production stands behind this product group.

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U.S.A.





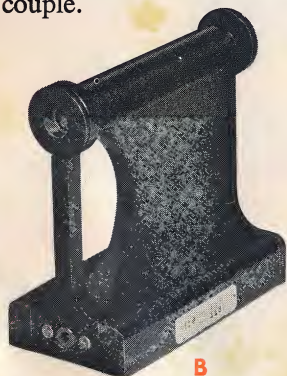
Radiation Sources

INFRARED INDUSTRIES, INC. Santa Barbara, Calif. (805) 684-4181

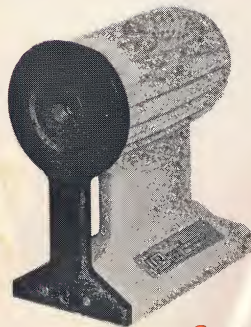
IRI Blackbody sources are accurately adjustable radiant energy standards for the calibration of infrared radiation detectors, other infrared sources and measuring instruments. IRI all-transistorized temperature controllers maintain source temperatures to within $\pm 1^\circ$ at any selected point in range. Source temperatures extend to 1500°C . Some features of IRI blackbodies are: Fast warm-up; selectable energy levels by interchangeable apertures; choice of physical configuration; provision for chopper; closed-loop electrical temperature control; air or water-cooled; PLUS exclusive internal certified thermocouple.



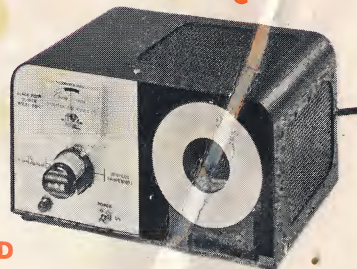
A



B



C



D

Thermocal®

Model 435 Blackbody Source

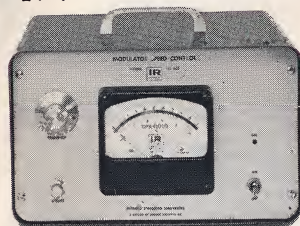
The Thermocal radiator consists of concentric V-grooves machined into a Thermostatted metal block providing an ideal blackbody condition because of multiple reflection. Self-contained controller is direct reading.

Model	Temp.	Cavity	Field	W.U.*	h x w x d"
403 A	325 - 1000°C	0.5"	14°	30	10½x8x8½
404 A	50 - 1000°C	0.5"	14°	45	11¼x10x9
405 A	325 - 1000°C	1.0"	30°	60	10½x8x9½
406 A	50 - 1000°C	1.0"	30°	60	11¼x10x9
407A B	200 - 600°C	0.080"	10°	5	3½x1¾x3¾
408 C	200 - 600°C	0.250"	90°	5	5½x3x4¾
417	50 - 1000°C	3.0"	18°	90	22x18x26
420 A	200 - 1200°C	0.5"	14°	45	11¼x10x9
427	200 - 600°C	.080"	14°	3	¾ dia.x3½ lg.
432 A	400 - 1400°C	0.5"	12°	150	11¼x10x9
435 D	150 - 1000°F	—	—	30	6¼x11½x8½
436†	400 - 1500°C	0.5"	3°	180	10x12x13

*W.U. Warm-up time in minutes / Red letters refer to illustrations at left
†Includes NON-AUTOMATIC, manual control

Modulators

The IRI Series 801 modulators chop, or modulate, radiant energy at a desired frequency with a stability of $\pm 1\%$.



IRI MODEL 801
Variable Speed
Modulator

Model	Freq. cps	Max. Aperture
801 A	2 - 200	0.75"
801 B	10 - 1000	0.75"
801 C	50 - 5000	0.2"
801 D	100 - 10,000	0.1"
801 E	300 - 30,000	.03"

Stability: $\pm 1\%$

Meter Accuracy: 1% F.S.

Dimensions: Rack mounted, 5¼" x 19" x 9½", hwd

Cabinet mounted, 7½" x 11½" x 9¼", hwd

Power Requirement: 117 v ac single phase 60 $\approx$ 100 watts, approx.

Request for Free Application Survey

Yes, and without obligation, I'd like to know more about the product lines checked:

- ☐ Temperature Measurement Instruments
☐ Low Noise, Low Voltage Instrumentation
☐ Collimators ☐ Blackbodies ☐ Scanners
☐ Infrared Test Labs ☐ IR Control/Alarm

But remember, I want facts, not "conversation."

My problem involves _____

Remarks _____

Name _____

Title _____

Company _____

Address _____

City _____ State _____

Phone _____ Ext: _____

- ☐ Demonstration ☐ More Information

Tear on dotted line, fold, staple and mail. No postage needed.